

## Extent of adoption of recommended sugarcane-technologies by the different categories of sugarcane growers

V. BALAMURUGAN AND M. VETRISELVAN

### ABSTRACT

A study was conducted to study the extent of adoption of recommended sugarcane technologies by the different categories of sugarcane growers in selected six blocks of Cuddalore district of Tamil Nadu. The selected six blocks were Keerapalayam, Kammapuram, Kattumannar Koil, Annagramam, Kurinjipadi and Mangalooore. The respondents were pre-stratified into marginal, small and big farmers consisting of 80 respondents in each categories. Altogether, 240 respondents were selected from six villages proportionately using simple random sampling. Thirty six per cent of marginal farmers had low level of adoption on sugarcane technology, whereas only 47.50 per cent of small farmers had medium level of adoption. In case of big farmers, 58.75 per cent of them had high level of adoption. Out of ten technologies of sugarcane cultivation, the difference could be observed between the marginal, small and big farmers for adoption of four technologies viz., sett treatment, herbicide application, bio-fertilizer application and use of bio-control agents.

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### INTRODUCTION

The growth and development of agriculturally pre-dominant nation like India mainly depends on the progress in sciences and technology. In the developing world today, it is not the lack of technology that worries, but is the rate of transfer of technology from the points of production to the units of its utilization. So, there is an increasing gap between innovations in the laboratories and their adoption in the field. The adoption of technology is a complex pattern of mental and physical activities. Several personal, psychological, economic and social factors largely determine the extent of adoption and also continuance of the technology (Yadav *et al.*, 2005).

Keeping these points in mind, the present study was attempted to study the extent of adoption of different categories of sugarcane growers and to study the relationship of socio-economic and psychological characteristics with extent of adoption of marginal, small and big sugarcane growers.

### METHODOLOGY

The study was conducted in selected six blocks of Cuddalore district. The selected blocks were Keerapalayam, Kattumannar koil, Annagramam, Kammapuram, Kurinjipadi and Mangalore. The respondents were pre-

stratified into marginal, small and big farmers consisting of 80 respondents in each categories. Altogether, 240 respondents were selected from six villages proportionately using simple random sampling. Fourteen personal, socioeconomic and psychological variables were selected for determining their relationship with the extent of adoption of sugarcane growers. A well-structured and pre-tested interview schedule was used to collect the data from the selected respondents. The collected data were analysed by using the percentage analysis, cumulative frequency method, zero order correlation and chi-square test.

### RESULTS AND DISCUSSION

From Table 1 it could be concluded that more than one third of the respondents were found under low (35.83 per cent) and medium (35.00 per cent) categories. The remaining 29.17 per cent of the respondents were found to be high in their extent of adoption.

The calculated chi-square value indicated that there was significant difference between the different categories of sugarcane growers regarding their extent of adoption. In case of marginal and small farmers, the extent of adoption was comparatively lesser than big farmers. Larger farm size of big farmers might have enhanced them to increase the number of farm activities, whereas this could not be

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**Table 1 : Distribution of respondents according to their extent of adoption**

Sr. No.	Extent of adoption	Marginal (n=80)		Small (n=80)		Big (n=80)		Total (n=240)		Chi-square value
		No.	%	No.	%	No.	%	No.	%	
1.	Low	36	45.00	29	36.25	21	26.25	86	35.83	54.13**
2.	Medium	34	42.50	38	47.50	12	15.00	84	35.00	
3.	High	10	12.50	13	16.25	47	58.75	70	29.17	
	Total	80	100.00	80	100.00	80	100.00	240	100.00	

\*\* indicates significance of value at P=0.01

**Table 2: Practices wise adoption of sugarcane technologies**

Sr. No.	Recommended practices	Marginal (n=80)		Small (n=80)		Big (n=80)		Total (n=240)	
		No.	%	No.	%	No.	%	No.	%
1.	Selection of sett	80	100.00	80	100.00	80	100.00	240	100.00
2.	Sett treatment	5	6.25	12	15.00	19	23.75	39	16.25
3.	Planting	80	100.00	80	100.00	80	100.00	240	100.00
4.	Herbicide application	13.	16.25	23	28.75	41	51.25	77	32.08
5.	Bio-fertilizer application	6	7.50	14	17.50	26	32.50	46	19.16
6.	Phosphatic fertilizer application	53	66.25	71	88.75	80	100.00	204	85.00
7.	Nitrogenous fertilizer application	59	73.75	67	83.74	80	100.00	206	85.83
8.	Potash fertilizer application	72	90.00	77	96.25	80	100.00	229	95.41
9.	Control for early shoot borer	57	71.25	61	76.25	70	87.50	188	78.35
10.	Use of bio-control agent	-	-	3	3.75	6	7.50	9	11.25

possible in the case of marginal and small farmers. This finding was supported by the finding of Jayasankar (2000).

### Practice wise adoption of sugarcane technologies:

#### Sett selection:

Selection of sett was observed as the major practice prevalent in the entire study area. All the respondents (100.00 per cent) adopted the recommended practice of selection of sett in the total sample as all of them had realized the need for selection of disease free sett.

#### Sett treatment:

Only 16.25 per cent of farmers in the total sample were found to have treated the sett with fungicide before planting. Among the categories, nearly one fourth (23.75 per cent) of the big farmers, 15.00 per cent of small farmers and only 6.25 per cent of marginal farmers had adopted this practice. Lack of visible impact of fungicide treatment might be the reason for non-adoption.

#### Planting:

Right method of planting was observed as the major practice prevalent in the entire study area. All the respondents (100.00 per cent) adopted the correct method of planting in the total sample. As all the farmers were aware of the advantages of right method of planting, they

practiced it.

#### Herbicide application:

Nearly one third of the (32.08 per cent) respondents had applied the recommended herbicide in the total sample. Among the categories, nearly half (51.25 per cent) of the big farmers, 28.75 per cent of small farmers and 16.25 per cent of marginal farmers had adopted the practice. High cost of herbicide and inadequate knowledge regarding the herbicide were the reasons expressed by sugarcane growers for their non-adoption.

#### Bio-fertilizer application:

Only 19.16 per cent of the respondents had adopted the bio-fertilizer application in the total sample. It was more in the case of big farmers (32.50 per cent), followed by small (17.50 per cent) and marginal (7.50 per cent) farmers. The bio-fertilizers did not have any visible impact. This might be the reason for non-adoption.

#### Phosphatic fertilizer application:

Application of phosphatic fertilizer at recommended level was adopted by most of the respondents irrespective of categories. The adoption level in case of big farmers is (100.00 per cent), followed by small (88.74 per cent) and marginal (66.25 per cent) farmers because, the factory

**Table 3: Zero order correlation of characteristics with extent of adoption of marginal, small and big sugarcane growers**

Sr. No.	Variables	Y value		
		Marginal	Small	Big
1.	Age	-0.104NS	-0.203NS	-0.206NS
2.	Educational status	0.219NS	0.201 NS	0.365**
3.	Occupational status	0.166NS	-0.181NS	0.107NS
4.	Area under sugarcane cultivation	-0.181NS	-0.082NS	0.018NS
5.	Farming experience	-0.050NS	-0.039NS	-0.158NS
6.	Experience in sugarcane cultivation	-0.109NS	-0.213NS	-0.211NS
7.	Annual income	-0.059NS	0.076NS	0.090NS
8.	Social participation	0.129NS	-0.178NS	-0.025NS
9.	Extension agency contact	-0.048NS	0.644**	0.490**
10.	Decision making	-0.187NS	-0.089NS	-0.244*
11.	Mass media exposure	0.587**	0.419**	0.490**
12.	Scientific orientation	0.188NS	0.008NS	-0.001 NS
13.	Information source utilization	0.653**	0.579**	0.529**
14.	Innovativeness	0.167NS	-0.033NS	-0.074NS

\*\* and \* indicate significance of values at P=0.01 and 0.05, respectively

NS - Non-significant

supplied half of the dose of recommended phosphatic fertilizers in time.

#### Nitrogenous fertilizer application:

Of the total respondents, most (85.83 per cent) of the respondents had applied the recommended dose of nitrogenous fertilizer in proper time. It was more in case of big farmers (100.00 per cent), followed by small (83.74 per cent) and (73.75 per cent) marginal farmers. Most of the farmers expressed that they could see the beneficial effects after the application nitrogenous fertilizers, which might be the reason for higher level of adoption of nitrogenous fertilizer application.

#### Potash fertilizer application:

Application of potash at recommended level was adopted by almost all (95.41 per cent) the respondents irrespective of the categories. Among the categories, big farmers (100.00 per cent), followed by small (96.25 per cent) and (90.00 per cent) marginal farmers. Most of the farmers expressed that they could see the beneficial effects after the potash application, which might be the reason for higher level of adoption of potash application.

#### Control of early shoot borer:

Early shoot borer was observed as the most common pest in the study area. The control measures were adopted by most of the respondents (78.35 per cent) in the total sample. Regarding categories, all the big and small farmers and 76.25 per cent marginal farmers had adopted the recommended control measures. Almost all the three

categories of farmers had realized the need for control of early shoot borer, which damages the crops and reduce the yield level to a considerable extent.

#### Use of bio-control agents:

Only 11.25 per cent of the respondents adopted the bio-control agent in the total sample. Among the three categories, just 7.50 per cent of big farmers and 3.75 per cent of small farmers had adopted this practice, whereas none of the marginal farmers adopted the practice. Inadequate knowledge and irregular supply of egg cards might be attributed as the reasons for non-adoption.

#### **Relationship of socio-economic and psychological characteristics with the extent of adoption of marginal, small and big sugarcane growers:**

It might be seen from the Table 3 that out of fourteen independent variables, two variables *viz.*, mass media exposure and information source utilization were found to have positive and significant relationship with the extent of adoption of all the three categories of sugarcane growers, whereas extension agency contact was found to have positive and significant relationship with the extent of adoption of the two categories of sugarcane growers, namely small and big growers. Educational status was found to have positive and highly significant relationship, whereas decision-making was found to have negative and significant relationship with the extent of adoption of the big sugarcane growers.

Mass media exposure and information source utilization were found to «\*-have positive and significant relationship with the extent of adoption of sugarcane

growers. Farmers get the information from different sources like official, non-official and mass media sources which might have resulted in greater knowledge and higher adoption. Extension agency contact was found to have positive and significant relationship with the extent of adoption. Contact with extension agency might have provided the opportunities to contact the authenticated sources of information and gain knowledge, which might have resulted in higher adoption. Educational status was found to have positive and significant relationship with the extent of adoption. Educated people may have better perceptual ability to grasp the things. This might have enabled them to gain and possess higher adoption. Decision making was found to have negative and significant relationship with the extent of adoption of big sugarcane growers. Big farmers with more consultative decision in sugarcane cultivation are mostly aged persons with low level of knowledge, which might have enabled the respondents to take joint consultative decisions.

### **Conclusion:**

In the light of the present investigation, it can be concluded that significant difference could be observed between the marginal, small and big sugarcane growers on the extent of adoption. The adoption level of marginal and small farmers was found to be comparatively low. Hence, there is more scope to concentrate more and

improve the adoption level of the marginal and small sugarcane growers. The attributes like mass media exposure and information source utilization of marginal farmers, extension agency contact, mass media exposure and information source utilization of small farmers and educational status, extension agency contact, mass media exposure and information source utilization of big farmers were found to be positively significant their adoption level. Hence, these features may be taken into consideration in the transfer of sugarcane technologies.

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